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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,386	08/30/2001	Bernhard Walke	PHD 99,200	8889

7590 02/16/2005

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EXAMINER	
MOORE JR, MICHAEL J	
ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/868,386	WALKE ET AL.	
	Examiner	Art Unit	
	Michael J. Moore, Jr.	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because the word "said" is used on line 6. Also, there is some confusion regarding the phrase "wireless, packet-oriented wireless networks" on line 13. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: On page 2, lines 16-24, there is some confusion regarding the language used on these lines. Also, on page 2, lines 29-30, there is some confusion regarding the sentence, "An FMT compares to the higher-order FMT, which is closer to AP, as an MT, and compares to the lower-order FMT as an AP". On page 3, line 6, the word "solution" should be "solutions". Also, on page 3, line 10, there is some confusion regarding the phrase "against RMTs appear as Aps, but against Aps appear as MTs". Also, on page 3, lines 30-31, there is some confusion regarding the sentence, "Irrespectively of each other, by the AP for MTs and FMTs and by the FMTs for their RMTs". On page 5, line 6, the

word "hows" should be "shows". Lastly, on page 7, lines 8-9, there is some confusion regarding the sentence, "It seems to be efficient to have the FMT periodically generate the partial frame with the same timing as the AP, but with a respective offset, compare Fig. 3". Appropriate correction is required.

The confusion regarding above language is believed to be due to the English translation made to the specification. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claims **1, 5, 6, 11, 12, and 14** are objected to because of the following informalities:

Regarding claim **1**, there is an objection made to the terms "AP", "FMT", and "RMT" used. In claim **1**, "a controlling base station (AP)", "a relay (FMT)", and "a station (RMT)" are used. It is suggested that the terms "access point (AP)", "forward mobile terminal (FMT)", and "remote mobile terminal (RMT)" be used instead in order to correspond with Figure 1. Also, on line 14, the word "the" before word "operation" is not needed. Also, on line 14, the phrase "can also serve as an RMT" should be "can also serve as an FMT".

Regarding claim **5**, on line 2, the word "the" before term "AP" should be "an".

Regarding claim **6**, on line 5, the word "the" before word "depth" should be "a". Also, on line 5, the word "the" before word "number" should be "a". Also, on line 5, the word "the" is missing before term "AP".

Regarding claim **11**, on line 2, the word "the" is needed before terms "AP" and "FMT".

Regarding claim **12**, on line 1, the word "the" before word "arrangement" should be "an". Also, on line 2, the word "the" before word "individual" is not needed.

Regarding claim **14**, on line 2, the word "the" is needed before the terms "MT" and "RMT".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims **1-5, 7, 9, 10, and 13-15** are rejected under 35 U.S.C. 102(e) as being anticipated by Brederveld et al. (U.S. 5,898,679) ("Brederveld"). Brederveld teaches all of the limitations of the listed claims with the reasoning that follows.

Regarding claim **1**, "a method with wireless base stations in centrally controlled radio systems, which systems transfer packets and guarantee service quality and comprise a controlling base station (AP), mobile terminals (MT) and stations working as a relay (FMT) for the connection between the RMT and the AP, the FMT maintaining both a connection to the AP and to the RMT by radio" is anticipated by the

communication method shown in Figure 1 where AP 110 communicates with relay station 150 which communicates with mobile station 123.

"Characterized in that a time-shifted partial frame structure is generated by the FMT based on a system wide known frame structure of the AP, which partial frame structure is used by the FMT to control the transmission from the FMT to the RMT and back, while the partial frames transport signaling data, useful data, and organization data about the structure of the partial frame for controlling the transmission between the FMT and the RMT to enable a communication between the RMT and the AP" is anticipated by the message (frame structure) communication between AP 110 and MS 123 (RMT) via dedicated relay station 150 (FMT) even though MS 123 is beyond broadcast range 140 of AP 110 as spoken of on column 4, line 59 – column 5, line 7. Lastly, "in that the structure of the partial frame is so similar to the frame generated by the AP that an MT, which is designed for operation at an AP, can also serve as an FMT and permits the exchange of data between the RMT and the FMT" is anticipated by relay station 150 (FMT) of Figure 1 that is a mobile station in the range of AP 110 and also a relay station to enable communication between AP 110 and MS 123.

Regarding claim **2**, "the organization of the partial frame structures is exclusively effected by a central controller in the AP" is anticipated by the message transmission from AP 110 (central controller) to mobile station 120 shown in Figure 1.

Regarding claim **3**, "the organization of the partial frame structures is effected by a decentralized control in the relay station (FMT)" is anticipated by the message

transmission from relay station 150 (decentralized controller) to MS 123 shown in Figure 1.

Regarding claim **4**, "the organization of the partial frame structures is partly effected by a central controller in the central station (AP) and partly by a decentralized controller in the relay station (FMT)" is anticipated by the message communication between AP 110 (central controller) and MS 123 (RMT) via dedicated relay station 150 (decentralized controller).

Regarding claim **5**, "a mobile terminal (MT) can become an AP and take over the role of a central station, while there are RMTs with respect to the AP" is anticipated by the message transmission from relay station 150 (mobile terminal) to MS 123 (RMT) shown in Figure 1.

Regarding claim **7**, "a central station (AP) can cover a plurality of terminals (MT) and relay stations (FMT) while each MT can have the functionality of an FMT" is anticipated by the message communication between AP 110 and mobile stations RS 150 and MS 122 shown in Figure 1 as well as column 5, lines 9-10, which states that MS 122 and RS 150 both function as relays.

Regarding claim **9**, "the assignment of the capacity for the relay path in the time domain can be effected in suitable systems, but also in the frequency domain or code domain" is anticipated by the spread spectrum and frequency hopping communication techniques spoken of on column 1, lines 23-26.

Regarding claim **10**, "there may be a plurality of FMTs that simultaneously cover their associated RMTs in various areas of the cell, while partial frames are

simultaneously transmitted at different spots in the cell" is anticipated by mobile stations RS 150 and MS 122 (plurality of FMTs) shown in Figure 1 as well as column 5, lines 9-10, which states that MS 122 and RS 150 both function as relays.

Regarding claim **13**, "a direct exchange of data is effected between the associated RMTs by controlling a common FMT" is anticipated by the message communication (direct exchange) between AP 110 and MS 123 (RMT) via dedicated relay station 150 (FMT) as spoken of on column 4, line 59 – column 5, line 7.

Regarding claim **14**, "a direct exchange of data is effected between MT, controlled by the AP, and RMT, controlled by the associated FMT" is anticipated by the message communication (direct exchange) between AP 110 and MS 123 (RMT) via dedicated relay station 150 (FMT) as spoken of on column 4, line 59 – column 5, line 7.

Regarding claim **15**, "a point-to-multipoint mode is used for transferring useful data" is anticipated by the broadcast messaging spoken of on column 5, lines 27-29.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims **6 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (U.S. 5,898,679) ("Brederveld").

Regarding claim **6**, Brederveld teaches the method of claim **1**. Specifically, Brederveld teaches the communication method shown in Figure 1 where AP 110 communicates with relay station 150 (FMT), which communicates with mobile station 123 (RMT). Brederveld does not explicitly teach a relay cascade where an RMT associated with an FMT can be an FMT of another RMT. However, at the time of the invention, it would have been obvious to someone skilled in the art to extend the FMT/RMT teachings of Brederveld to create a relay cascade in order to further extend the range of the access point communicating with these mobile stations.

Regarding claim **8**, Brederveld teaches the method of claim **1**. Specifically, Brederveld teaches the communication method shown in Figure 1 where AP 110 communicates with relay station 150 (FMT), which communicates with mobile station 123 (RMT). Brederveld does not explicitly teach an FMT that can simultaneously cover a plurality of RMTs. However, at the time of the invention, it would have been obvious to someone skilled in the art to use the FMT of Brederveld to communicate with more than one RMT at a time in order to increase the efficiency of communication between the access point and mobile stations.

10. Claims **11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brederveld et al. (U.S. 5,898,679) ("Brederveld") in view of Hayashi (U.S. 5,907,540).

Regarding claim **11**, Brederveld teaches the method of claim **1**. Specifically, Brederveld teaches the communication method shown in Figure 1 where AP 110 communicates with relay station 150 (FMT), which communicates with mobile station 123 (RMT). Brederveld does not explicitly teach how frame length can dynamically vary. However, Hayashi teaches a message relay method where a data frame for direct communication is shown in Figure 7 and a data frame for relay communication is shown in Figure 10. These frames have differing fields and thus differing lengths. At the time of the invention, it would have been obvious to someone skilled in the art to combine the teachings of Brederveld with the frame teachings of Hayashi in order to reduce traffic by distinguishing between direct and relay communication as spoken of on column 2, lines 48-51 of Hayashi.

Regarding claim **12**, Brederveld teaches the method of claim **1**. Specifically, Brederveld teaches the communication method shown in Figure 1 where AP 110 communicates with relay station 150 (FMT), which communicates with mobile station 123 (RMT). Brederveld does not explicitly teach that an arrangement of the frame phase is dynamically changed. However, Hayashi teaches a message relay method where a data frame for direct communication is shown in Figure 7 and a data frame for relay communication is shown in Figure 10. These frames have differing fields and thus differing phases. At the time of the invention, it would have been obvious to someone

skilled in the art to combine the teachings of Brederveld with the frame teachings of Hayashi in order to reduce traffic by distinguishing between direct and relay communication as spoken of on column 2, lines 48-51 of Hayashi.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Larsen et al. (U.S. 6,473,617), Bahlenberg (U.S. 5,761,194), Meier et al. (U.S. 6,826,165), and Cheung et al. (U.S. 6,549,786) are all references that contain material pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571) 272-3168. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J. Moore, Jr.
Examiner
Art Unit 2666

mjm MM

FRANK DUONG
PRIMARY EXAMINER